

SAAP Bulletin

The newsletter of the South Asian Association of Physiologists

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This period marked two important events in the SAAP calendar: The Annual General Meeting of the SAAP and the appointment of new office bearers, under the Presidency of Professor Kusal Das and the Commemoration of the Founder of SAAP, Late Professor Arif Siddiqui, via a virtual programme

This issue thus describes the progress of SAAP, and how the Physiological societies and their membership of SAAP function to promote physiology, despite the problems encountered during the covid pandemic



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From Editor's Desk



Professor Piyusha Atapattu

The coronavirus pandemic has been raging for over a year, and is still creating havoc in the South Asian region. High population densities, suboptimal facilities and emerging newer variants of the virus have overburdened the healthcare systems in most South Asian countries, interfering with the normal functioning of the higher education institutes as with most other areas of normal life.

The SAAP, its member physiological societies and their membership have however continued to be active, utilizing alternative means for functioning. The Annual General meeting of the SAAP was held following a successful SAAP conference and the new advisory board and the executive committee were appointed under the presidency of Professor Kusal Das, from India. This was followed by the commemoration programme of the Founder of SAAP, the beloved late Professor Arif Siddiqui, with wide international participation, over a virtual programme. Physiological societies of member countries have been active and have conducted several important scientific programmes.

This issue reports the successful continuation of activities of SAAP membership despite the obstacles encountered.

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Message from the President of SAAP



Professor Kusal K. Das
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It is with great honour and privilege that I write this message for all the distinguished readers of this webpage of South Asian Association of Physiologists. I must convey my sincere thanks to all the members of South Asian Association of Physiologists (SAAP) for electing me for the prestigious position of President for the period of 2020-2022. For me, the task is definitely a demanding one as my illustrious predecessors were Late Prof. Arif Siddiqui and Prof. (Maj. Gen.) Dr. Mohammad Aslam have put ardent efforts to keep all of us united.

The void which is created due to sudden demise of Prof. Arif Siddiqui- the physiologist who is the principal architect of this great organization of the Physiologists from South Asian nations like Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Since its birth, the SAAP was well protected and guided by legendary Prof. Arif Siddiqui and doyens of South Asian Physiologists like Prof. Mohammed Aslam, Prof Amar K. Chandra, Prof. Sharaine Fernando, Prof. Noorzahan Begum, Prof. Savitri Wimalasekara and Prof. Rita Khadka and many more noted scholars.

At present, the world is passing through a critical stage because of COVID 19 pandemic. The pandemic has hit hard on the face of scientific and research collaborations between the Institutions all over the world and the Institutions of South Asian nations are of no exception. Although, science and technology has come to rescue itself by propagating virtual platforms but the absence of in person scientific interactions

cannot be denied. The laboratory's innovative works, research and promotion of cultural and philosophical diversity have taken a back seat. To me, the most important task of the newly formed SAAP Executive committee is to keep the scientific bindings among our SAARC Nations in the field of Physiological Sciences intact. The purpose of SAAP is to promote the Physiology education and fundamental research which will make the advancement of science beyond border. At current scenario, the SAAP must seriously think of how to overcome the difficulties and keep classical physiological sciences in education and research intact to support clinical medicine and guide tomorrow's physicians and scientists. The virtual platform partly supports physiology education, but it is not easy to support fundamental research in classical physiology without physical contact. The time has come for research in physiology to focus on computational Biology, Genomics and Proteomics besides experimental Physiology and observational based clinical experiments. It is true that the essence of science is missed when human interaction and support is incomplete because research is a teamwork and without the teamwork, quality research is impossible. Hence, we the South Asian Association of Physiologists must now have more discussions and sharing of the data on clinical experiments and observations among each other. The experimental physiologist may conduct extremely specific and critical research based on strong hypothesis. SAAP is committed to support and guide every member of the family to promote for their upbringing and development of the career of young physiologists so that they move forward in the domain of physiological sciences. Hence, the challenge is tougher in this current scenario, but I am sure that experienced, scholarly, and eminent physiologists of SAARC nations under SAAP will find out the ways to overcome the challenges.

Further, I hope the SAAP will more diligently work with IUPS, FAOPS, and other International Organizations to support each other for the interest of physiological

sciences in the world. We need more supports from each corner of the world for the benefit of Physiology and physiologists. I am happy that, the wise peer advisory committee of SAAP has invited President of IUPS and FAOPS, Physiology Education Chair of IUPS, FAOPS and UNESCO Chair Life Sciences to join in SAAP Executive Committee as “adjunct advisors”.

I am confident that with the blessings of God, our guiding force Late Prof. Arif Siddiqui and our peer advisors, the South Asian Association of Physiologists will move forward and work for the interest of every physiologist of SAARC Nations to see a future Nobel Laureate among them.

Long live SAAP!

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Former President of SAAP (Bagladesh)

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Former President & Secretary General of SAAP (India)

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Former President of SAAP (Nepal)

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Message from the Secretary General of SAAP



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It is with great pleasure I pen this message as the newly elected Secretary General of SAAP for 2021 and 2022. I was elected as the 4th Secretary General of SAAP after serving as the Joint Secretary since 2012.

Untimely demise of Prof Arif Siddique, the Founder of SAAP on 15th March 2020 was a hard blow to the Association. Prof Siddique was leading the association as the 6th President of SAAP at the time of his death. He was the guiding light of SAAP from its inception and he was the person who introduced me to the SAAP community. I take this opportunity to pay tribute to this great physiologist who was a mentor for juniors.

Since the establishment of the South Asian Association of Physiologists in 2008 at the Inaugural convention held in conjunction with 11th Biennial conference of Pakistan Physiological Society at Shifa College of Medicine, Islamabad, the member countries contributed actively to broaden its horizons during these 12 years of existence while attempting to achieve its objectives.

Active contribution of member societies made the SAAP globally recognized professional organization committed for the advancement of physiology discipline and physiologists. Biennial conferences held in Pakistan (2008), India (2010), Sri Lanka (2012), Bangladesh (2014), Nepal (2016), Pakistan (2018) and the first virtual conference held in India in 2021 created platforms to develop interactions among physiologists while promoting peace and harmony among different nations. I take this opportunity to thank the SAAP Executive Committees and Advisory Committees led by the Presidents and Secretary Generals for their commitment and team efforts in collaboration with the local organizing committees of conferences.

As an initial event in order to enhance scientific collaborations and also to promote physiology education in the region, with the concurrence of the advisory committee, President and myself extended invitations to Presidents of International Union of Physiological Societies (IUPS) and Federation of Asian Oceanian Physiological Societies (FAOPS), Chair of UNESCO Life Sciences and Education Chairs of IUPS and FAOPS. I sincerely hope that as 'Adjunct Advisors' their contributions will be fruitful in the future to make SAAP stronger as a professional organization creating benefits to its members.

Let's work together to make SAAP a complete success.

Commemoration of late Professor Arif Siddiqui; The Founder of SAAP



Being a visionary, Late Professor Arif Siddiqui founded the South Asian Association of Physiologists (SAAP) in collaboration with the counterparts in Bangladesh, India, Nepal, Pakistan and Sri Lanka in 2008. As the Founder, he made every attempt with the members of the SAAP to achieve its objectives until his untimely death on 15th May 2020. In order to commemorate, 1st death anniversary of the Founder, SAAP Council for 2021 & 2022 organized a special online programme with the participation of his close family, senior physiologists, his colleagues, and friends on 12th June 2021. There were about 40 participants joined via Zoom link and many more did the same via YouTube live link.

Prof. Mangala Gunatilake, the Secretary General (SG) of SAAP commenced the programme with introductory remarks. Improving physiology education in the region is one of the objectives that late Professor Arif Siddiqui wanted to achieve as the SG of SAAP for 3-terms from the inception. For this he

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collaborated with the International Union of Physiological Societies and made arrangements to conduct the 1st SAAP pre-conference Education workshop during the 3rd SAAP conference at the Faculty of Medicine, Colombo, Sri Lanka. Late Professor Arif Siddiqui became the President of SAAP in 2018, and was serving in this post at the time of his death.

At the end of introductory remarks, Professor Gunatilake unveiled online the photograph of Professor Arif Siddiqui followed by observing 2-minutes silence to pay tribute to the Founder.

Professor H R Ahmad, a senior physiologist who was the mentor and colleague of late Prof. Arif Siddiqui at Aga Khan University in Karachi, Pakistan, introduced late Prof Arif Siddiqui as “a broad-based thinker with a clear vision, a man of integrity..... what he said he did it”. He said “what a legacy he has left which has a gravity to pull itself and further mentioned that he has

left a nice boat in which we are, he was behind the boat guiding it to move forward”.



Virtual unveiling of the photograph of SAAP Founder

Mrs Shaheen Siddiqui, wife of late Professor Arif Siddiqui and his two daughters joined the programme. Mrs Siddiqui mentioned that it took nearly 1-year to have courage to speak about her late husband. He had been a passionate physiologist who devoted most of his time to develop SAAP, and therefore, she considered SAAP as their third child. She declared that late Professor Siddiqui was a simple man who was very down to earth.

Professor Robert G. Carroll, Education Co-Chair of the International Union of Physiological Sciences (IUPS) shared his memories with Late Professor Arif under the topic 'Adventures with Arif Outside of the Educator Comfort Zone'. During his talk he said that "Professor Arif had created a great impact in our lives". He shared his memories with Professor Arif and how it benefitted him over the years.



Inaugurating SAAP Pre-conference Education workshop in 2012

All the former Presidents and Secretary Generals of SAAP who worked with late Prof. Arif Siddiqui shared their thoughts on the moments with late legendary physiologist during this commemoration!

Professor Muhamed Aslam, 1st President of SAAP from Pakistan made a memorable pictorial presentation to pay tributes to late Prof. Arif Siddiqui. Professor Amar Kumar Chandra of India shared his thoughts as 'Sweet Memories with Prof. Arif- The architect of SAAP', followed by Professor Noorzahan Begum of Bangladesh on 'Prof Arif.....my friend. Professor Sharaine Fernando of Sri Lanka shared her thoughts as 'Arif Siddiqui; the mentor, colleague and friend while Professor Rita Khadka of Nepal described Prof. Arif Siddiqui as a true leader.

Professor Savithri Wimalasekera, immediate past SG who worked with late Professor Arif during his presidency shared her thoughts on 'Vision of Prof. Arif for Asian Physiologists' while Professor Samina Malik, as a mentee of late Prof. Arif Siddiqui talked on 'Scientific contribution of Prof. Arif Siddiqui revisited'.

Finally, it was the moment for Professor Kusal K Das, the current President of SAAP from India who is sailing the SAAP boat while providing leadership to all and taking the legacy created by its Founder, to appreciate the contributions made by all friends and distinguished leaders in physiological sciences from south Asian countries for making this commemorative programme a memorable one.

Special thanks go to Professors Manish Bajpai and Sarmishtha Ghosh of India, Barb Goodman of USA and Mei-Ling Tsai of Taiwan for sharing their thoughts about Prof. Arif as a friend, colleague, educator and creator.

I appreciate very much for the technical support extended by Dr. Sayandeep Das from India during the program.

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Feature article: Mental Health of Bangladeshi population in COVID 19 Pandemic



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Coronavirus disease 2019

(COVID 19) is now a grave concern of global scale. Its impact is being felt in almost every aspect of life including human health, health care, economy, industry, global market, agriculture. Focus has also been placed on identification, testing, isolating, treating infected people, treatment protocol and vaccines. Mental health and psycho-social consequences of COVID 19 are also being observed. Quarantine, self-isolation have disrupted routine, activities and livelihood of many of the world's population which can lead to anxiety, loneliness, depression, insomnia, self-harm.[1] A densely populated, middle income country like Bangladesh is also feeling the brunt of COVID 19. While trying to adjust their lives in this pandemic many of its population are finding their mental health at jeopardy. A devastating psychosocial impact has been observed due to major setback in the human resource and apparel sector in the country as an outcome of the negative effect of COVID 19 on the global economy and local economy.[2]. People are suffering from fear, stress, worry, posttraumatic stress disorder due to loss of human lives, spread of infection, job loss and restriction on socialization.[3]

A survey conducted with 10,609 participants in the country in 2020 noted that 64%, 87% and 61%

individuals experienced symptoms of depression, anxiety and distress respectively. In the study, female subjects, those who were married, subjects having lower education, those facing difficulty with accommodation, subjects experiencing COVID 19 related health symptoms were suffering more from the mental health issues.[4] Another population based study done in 2020 with 10,067 individuals across 64 districts in Bangladesh found 33% and 5% prevalence rate for depression and suicidal tendencies respectively. Here young, female, cigarette smokers, those having comorbidities had high prevalence of fear. High rate of depression and suicidal tendencies were observed among dwellers in capital and districts near the capital of Bangladesh as well as in costal areas of the country.[5]

The Bangladesh Health care system has been experiencing tremendous additional stress during the pandemic. The pandemic has placed the Frontline Health care workers at a higher risk of Psychological distress. Being a crucial part of the health care system their mental health is of great importance. A compromise in the doctors' emotional wellbeing and thus persona wellbeing may adversely affect patient care. In Bangladesh, the doctors continue to be at risk of getting infected themselves and spreading the infection to family members.

The stress of long working shifts, infection risk and isolation has gradually deteriorated mental health of doctors. A cross sectional study done with 358 doctors residing in Dhaka city, Bangladesh in 2020 has observed 78.5% of the doctors are at risk of developing mental health conditions with female doctors having lower mental wellbeing.[6] In another study on mental health of Physicians in COVID 19 pandemic found 32.5% and 34.2% suffered from anxiety and depression respectively, noting the main risk factors for anxiety to be work per day, marital status and location of current job while main risk

factors for depression to be gender, age and marital status.[8] An online cross sectional study performed with 370 doctors serving suspected or confirmed COVID 19 patients found a prevalence rate of 36.5%, 38.4%, 18.6% and 31.9% for anxiety, depression, insomnia and fear of COVID 19 respectively. [7]

The risk factors for mental health during the COVID 19 in Bangladeshi population needs assessment, screening with identification of individuals at risk of the various mental health conditions like anxiety, depression, stress and suicidal tendencies. Preventive measures should be in place and those suffering from mental health condition should be encouraged to seek professional help. In Bangladesh, Despite the physical and mental challenges our Front liners continue to serve the patients to the best of their ability with professionalism and compatibility in the COVID 19 pandemic. However, for them to provide their service effectively their mental and physical wellbeing needs to be ensured. The mental health condition of the Frontline Health Care Workers is of great importance and needs to be addressed by policy makers with appropriate strategy development and implementation to reduce risk of being infected by COVID 19. Work force trained in infection control along ensuring adequate supply of PPE and setting up of mental health counseling facility in hospitals may reduce the psychological stress being felt by our front liners.

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Physiology updates:

How does heart generate electrical fields per cycle?



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A charge produces an electric field around in a space to let the force be felt by another charge at a distance as Newton/Coulomb. The electrical field has been imagined through a beautiful vectorial geometrical design showing how the lines of electrical field direction radiate outwards from a positive charge like a broom. A negative charge receives the lines inwardly directed like a vacuum sweeper. The beauty is added when the flowing charge produces the magnetic field at right angle to each other in the form of MCG. Now the story starts for your perusal and critique as follows:

The flow of ionic current through the heart causes an electrical field which spreads over the body surface through the extracellular space. The field vector changes its magnitude as a function of change in direction. The projection of the summation vector on the body surface is recorded as the potential difference using ECG chest and limb leads. The dipole front of the electrical field sweeps across the heart in the form of coordinated waves per cycle. Elementary dipoles add to the summation of an integral vector.

The magnitude of the field vector depends on the myocardial cell numbers being included in the dipole front and the direction of elementary vectors

in the summation process. When the current is flowing through a larger myocardial mass and its elementary vectors are in the same direction on a normal conducting pathway and sequence of activation, a large summation vector of the electrical field would emerge expressing a larger wave on ECG. Since the direction of elementary vectors in ischemic heart is disrupted, vectors meander in many possible directions.

Thus, the magnitude of the summation vector is consequently reduced. This effect can be demonstrated through the plot of vector magnitude against direction of the electrical field for a normal and ischemic heart in response to exercise.

$$V = C' \cdot qs \cdot d \cdot \cos\theta / r^2$$

This equation shows the voltage, picked up by the point on the limb lead system, is proportional to a constant C' , charges on the dipole surface qs , distance between charges d and the solid angle Ω being equal to $\cos\theta/r^2$.

One of the recording electrodes on the left foot on the body surface looks at the dipole surface of a piece of partially depolarized heart through a solid angle Ω . It shows how the amplitude of a cardiac action potential is proportional to charge density on the dipole surface. It means it looks through the solid angle at two dipoles of the resting myocardial cell. From the one surface it looks at the positive and from the other surface it looks at negative

charge. Therefore, the potential at the lead is cancelled.

The scenario changes when one of the two cells is depolarized from the left side and the lead is looking through a solid angle which can be divided in $\Omega 1$ to $\Omega 3$. One can notice that parts of the cell seen under 1 and 3 do not produce potential. However, the cellular section under $\Omega 2$ generates potential following the equation $V = 2C' \cdot q \cdot d \cdot \Omega$. It is because from both potential surfaces the recording electrode looks the positive charges and consequently no cancellation of charges occurs. As the dipole front sweeps through the myocardial mass, the solid angle of an individual fibre sums up to an integrated omega to be seen by the recording electrode.

Inferences:

1. Only the boundary between depolarized and resting portion of myocardial mass generates a dipole and consequently the potential recorded at the recording electrode.
 2. The magnitude of the dipole front is proportional to the solid angle through which the lead looks at the front.
 3. The potential at any lead is proportional to the amplitude of myocardial action potentials.
 4. The potential in a lead is positive if the dipole front is moving toward it. It is negative if it sweeps away from it.
- It can be inferred that the myocardium under resting and depolarized states does not show any potential on the limb leads due to absence of the dipole front under the plateau phase of action potentials. This is true for S-T and T-P segments of ECG recording.

Vectorial representation of source of cardiac voltage:

The dipole moment of the potential carrying surface, e.g., a cross section of myocardial fibre which divides the depolarized [negatively charged] from the polarized ones [positively charged] could be represented by a vector. It is located perpendicular to the charged surface in the direction of the myocardial fibre. The length of the vector is proportional to the amplitude of the cardiac action potential. Likewise, the dipole surface is composed of many individual dipoles of muscle fibres. For each moment of the spread of ionic current, there is corresponding cardiac electrical field. This field is represented by a cardiac potential vector. Its direction and magnitude and consequently the potential is symbolized on each point on the body surface.

A precise answer to the question what the relationship between magnitude and direction of cardiac vectors on one side and the potential difference between electrodes on the body surface could be. This relation seems to be complicated by

1. size and position of the heart;
2. limited field of chest;
3. eccentric position of vectors in thorax,
4. different conductivity of organs in thorax.

If we consider a spherical thorax with a rather homogenous conductivity, the cardiac vector could be imagined to be placed on the equal distance from three lead systems. It means the potential on VL, VR and VF can be measured as follows: VL – VR = lead I, VF – VR = lead II, and V – VL = lead III. The potential difference is proportional to the cosine of the angle between the integral vector of heart and the projecting axis between each lead. It would be then possible to derive the potential difference in each one of the leads from the cardiac vector and

likewise one could derive the cardiac integral vector from the measured potential difference from the lead systems.

However, preferred would be a method that could record continuously the spatial representation of cardiac integral vector during the full length of a cardiac cycle. Vectorcardiography (VCG) has made it possible.

The physical basis of VCG is as follows:

the cardiac vector can be dissected into three perpendicularly located components X, Y and Z. It would mean that there is a linear relationship between the size of the potential difference at a distance point on the body surface and the magnitude of individual component of cardiac vector. Therefore, the potential at VL, VF and VR on the body surface is defined as summation of three components.

$$\begin{aligned}VR &= a_1X + b_1Y + c_1Z \\VL &= a_2X + b_2Y + c_2Z \\VF &= a_3X + b_3Y + c_3Z\end{aligned}$$

The coefficients a_1 to c_3 are constants which depend on form of body parts e.g., muscle, lungs, vertebral column, conductivity and choice of lead system. These constants were determined for the corresponding lead system. This enabled to derive the three spatial components of cardiac vectors from the three equations above.

$$\begin{aligned}X &= \alpha_1VR + \alpha_2VL + \alpha_3VF \\Y &= \beta_1VR + \beta_2VL + \beta_3VF \\Z &= \gamma_1VR + \gamma_2VL + \gamma_3VF\end{aligned}$$

The coefficients α_1 , β_2 and γ_3 are constants which can be calculated from a_1 , b_2 and

c_3 . Then one can derive X, Y and Z leads from the measured VR, VL and VF on specific positions and the known constants α_1 , β_2 and γ_3 . VR, VL and VF correspond to the voltage recorded at right arm, left arm and the left foot respectively on the X, Y and Z planes.

Interestingly, the vectorcardiograph is an instrument which automatically calculates all the components of the cardiac vector according to the above derived equations for three signals X, Y and Z. When X and Z carrying voltage are connected, one observes on the screen of the oscilloscope the time course of the projection of cardiac vector during QRS in the horizontal plane. X and Y and Y and Z would display in frontal and sagittal planes. It is also possible to project VCG on two screens to stereoscopically observe the loops during the time frame of a cardiac cycle. Three P, QRS and T loops of VCG can also be demonstrated using a wire-model showing the depolarization of atria, ventricles and repolarization of ventricles.

CW Vellani group recorded voltage signals from three X, Y and Z chest leads. They innovatively used a software, instead of an expensive oscilloscope, to transform scalar ECG signals from XY, XZ and YZ into the VCG loops in frontal, horizontal and sagittal planes. With this unique abridged ECG-VCG unit, they were the first to report VCG response of graded exercise in cardiac patients and controls. The study revealed the reduction in QRS vector magnitude as a new sensor for myocardial ischemia.

Adapted from the classical elegant work of Wolfgang Trautwein from the University of Homburg Germany, Henry Gauer from the University of Berlin and the recent innovative studies of CW Vellani from Aga Khan University.

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Research article:

Visual defects in humans with organophosphorus poisoning: Evidence from visual electrophysiological evaluation



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Organophosphorus (OP) insecticides seem to be the most commonly ingested pesticides in Asia, which accounts to around 2/3rd of self-poisoning cases [1]. Organophosphorus compounds inhibit acetylcholinesterase (AChE) enzyme which plays a key role in breakdown of the neurotransmitter acetylcholine, found in both the peripheral and central nervous systems. This leads to accumulation of acetylcholine which will then overstimulates the nicotinic and muscarinic receptors, causing several short-term and long-term effects on the central and peripheral nervous systems. But, are there any deleterious effects of organophosphorus compounds on the visual pathway? Though animal studies are available, human studies based on this regard are sparse.

Clinical electrophysiological testing of the visual system incorporates a range of non-invasive tests and provides an objective indication of function relating to different locations and cell types within the visual system. Though many sophisticated techniques are available to detect and evaluate the structural integrity, this is the only objective test to evaluate the functional integrity of the visual pathways even before the visual symptoms appear. Visual electrophysiological tests systematically evaluate the function of the specific stages of visual processing

from the retina to the visual cortex. The main three types of advanced visual electrophysiological tests consist of visual evoked potentials (VEP) to assess the functional integrity of the post retinal pathways, electroretinography (ERG) to assess the functional integrity of the retina [2,3] and electro-oculography (EOG) to assess the functional integrity of the retinal pigment epithelium (RPE) and the interaction between the RPE and the photoreceptors. The retinal pigment epithelium (RPE) is a specialized epithelium in the retina. RPE is known to have alpha -7 nicotinic ACh receptors located on the outer microvilli of the RPE [4]. This makes the RPE a potential target in OP poisoning, since its main mechanism of action is deactivation of acetyl choline esterase enzyme. Few animal studies provide evidence of abnormalities in ERG following exposure to some OP pesticides, which provide evidence of retinal involvement in OP poisoning [5-7]. Though animal studies show that some OPs elicit visual electrophysiological changes, the effects of acute OP poisoning on visual system of humans have not been systematically studied [8]. Therefore, this present study was carried out with the aim of investigating the effects of acute OP-poisoning on the function of visual pathways of patients with acute OP -poisoning.

Electrophysiological measures on visual functions between a group of patients with OP poisoning and a healthy control group were assessed. Sixteen adult patients (>18 years of age, 15 males) with a clinical diagnosis of OP insecticide poisoning admitted to the toxicology ward, Teaching Hospital, Peradeniya, were included in the study. Erythrocyte AChE levels were measured using Test-Mate Cholinesterase Test System (model 400) (EQM Research, Inc., Cincinnati, OH), a validated bedside method [9]. They were treated with standard doubling atropine doses followed by atropine infusion until cholinergic signs disappeared

[10]. The visual electrophysiological assessments were done at least 24 h following de-atropinization, but within 8 weeks following exposure. Sixteen healthy subjects of age > 18 years with normal or corrected-to-normal vision in neuro-ophthalmologic examination, were recruited into the control group for comparison. Visual electrophysiological studies were performed in each participant. The recording technique conformed to the International Society of Clinical Electrophysiology of Vision (ISCEV) guidelines [11-13]. Pattern reversal visual evoked potential (PRVEP) test was done to assess the functional integrity of the post retinal pathways using the Natus EMG/NCV/EP machine (Natus Neurology Inc., USA) (Fig 1). P100 latency and amplitude values are the most robust components in PRVEP.

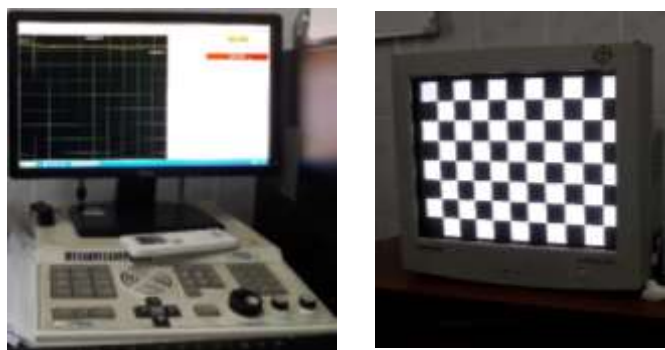


Fig 1: Natus EMG/NCV/EP machine with CRT visual monitor

Pattern electroretinography (PERG) was done to measure the functional integrity of the photoreceptors and ganglion cells of the macular region using a Nicolet Viking Quest machine (Natus Neurology) (Fig 2). Functional integrity of the RPE-photoreceptor interaction was assessed by EOG test using the Natus EMG machine and a Ganzfeld dome. P50 and N95 components in PERG and the Arden ratio (syn. LP: DT ratio) in EOG are the major outcome measures in PERG and EOG respectively.



Fig 2: Nicolet Viking Quest EMG/NCV/EP machine with the special LCD visual stimulator

According to the results, RPE changes, as indexed by significant changes in median as well as individual Arden ratio values in EOG, were the most common abnormalities observed in this study. As per the ISCEV norms, six subjects in the OP group, but none in the control group had significant reduction in Arden ratio denoting an abnormality in the retinal pigment epithelium-photoreceptor interaction. Though few patients had individual abnormalities in PERG and EOG, the group differences were not significant for electrophysiological measures of macular or post-retinal pathway integrity.

To the best of our knowledge, this is the first visual electrophysiological study that assessed the functional integrity of the retina and post-retinal pathways in OP-poisoned humans[14]. Our findings indicate that acute OP poisoning seems to affect the functions of the RPE. These abnormalities in RPE in OP-poisoned patients, could be explained by structural and physiological characteristics of the retina and the visual pathways. As there are nicotinic ACh receptors on the RPE cells, ACh is likely to be present in the outer photoreceptor segment[15]. OP poisoning would have caused an increase in ACh activity from the outer segments of the photoreceptors which stimulated the ACh receptors on the apical surfaces of RPE cells. This interaction probably has caused changes in ionic conductance in RPE leading to changes in EOG parameters. Other postulated mechanisms in animal studies include oxidative stress, cell apoptosis, lipid peroxidation and DNA damage in retinal and RPE cells [16,17]. These findings would warrant future long term follow up studies in this regard. This study may be an eye-opener to include visual screening in OP-poisoned patients to detect visual defects even before symptoms appear. Then early treatment can be initiated to prevent them from progressing to severe visual impairment or blindness.

Disclosure

The contents discussed in this article have been already published in the journal "Clinical Toxicology" and a part of the Doctoral thesis of the author. It has been cited in this article for further reference. Email address: padminid@pdn.ac.lk

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Research article:

What diabetic foot ulcer classification system should we use?



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Background:

People with diabetes-related foot ulcers (DFU) are at high risk of major complications such as minor or major amputation [1]. A DFU was defined as a breach in the epidermis of the foot in a person with previously diagnosed diabetes [2]. Grading the severity of DFUs using a classification system is of potential value for predicting the risk of its complications [3].



Commonly used DFU classification systems include the Wagner classification [4], University of Texas Wound Classification System (UTWCS) [5], the Site, Ischemia, Neuropathy, Bacterial Infection, and Depth (SINBAD) score [6] and the Wound Ischemia foot Infection (WIFI) score [7]. These systems are typically designed to aid treatment decisions, communication between health professionals, in conducting audits, benchmarking between services and predicting outcomes [8]. Thus, it is important that a DFU classification system can be repeated by different clinicians in a rapid time frame [9]. The International Working Group on Diabetic Foot (IWGDF) guideline recommends the use of the WIFI classification system for these purposes [8]. However, the reproducibility of the WIFI score has not been assessed or compared to other systems [10].

Methods:

We conducted a prospective single centre observational cohort study of patients who were admitted to the Townsville University Hospital (TUH) in North Queensland, Australia, for inpatient treatment of a DFU. Recruitment occurred from 1st January 2020 to 30th June 2020. Inclusion criteria were diagnosis with type I or II diabetes, presence of an active DFU, age over 18 years and provision of written informed consent. Patients who presented with gangrene or who had wound debridement or amputations before they could be recruited to the study were excluded. Ethical approval for the study was granted by the Townsville Hospital and Health Services Ethics Committee (HREC/12/QTHS/202 and HREC/12/QTHS/203).

Photographs of the DFU were taken at entry to the study and these were used for grading using previously described methods [11]. Three assessors (a

vascular surgeon, a podiatrist, and a medical practitioner) who were trained prior to the study, classified all ulcers based on one-foot ulcer classification system and then with the next. The photographs were taken using both a Silhouette star camera (The SilhouetteStar™, Aranz Medical Ltd.) and an i-phone XR (iOS 12.0 software, Apple inc). These photographs along with clinical data and information on ischemia were used to classify ulcers according to the different classification systems [4-7]. This allowed for the remote assessment of DFUs while following appropriate infection control protocols during the COVID-19 pandemic minimising patient-clinician contact [12]. The same three observers independently undertook the DFU scoring and then repeated the scoring a second time 7 days later to assess the intra-observer agreement. They also recorded the time in minutes they spent assessing each photograph. The inter-observer and intra-observer reproducibility of the different classification systems were measured using Krippendorff's alpha for ordinal data [13].

Values were interpreted as: ≤ 0 = no agreement; 0.01–0.20 = slight agreement; 0.21–0.40 = fair agreement; 0.41–0.60 = moderate agreement; 0.61–0.80 substantial agreement; and 0.81–1.00 = excellent agreement [13] and was calculated using R software [(R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. Version: 4.02 using rel: Reliability Coefficients. R package, version 1.4.2 and irr: Various Coefficients of Interrater Reliability and Agreement. R package version 0.84.1)]. The time taken to grade each ulcer was compared between the different ulcer classification systems using the Kruskal-Wallis test.

Results:

A total of forty-five patients were recruited. The WIFI classification had substantial inter-observer agreement ($\alpha=0.788$) and excellent intra-observer agreement ($\alpha>0.900$) between assessors based on Krippendorff's alpha values (Table 3). Inter-observer agreement for SINBAD scores was moderate ($\alpha=0.516$). Inter-observer agreements for Wagner and

UTWCS scores were fair ($\alpha= 0.374$ and 0.306 respectively). Intra-observer agreement for all classification systems was moderate ($\alpha>0.599$) except on one occasion where the agreement was fair in the UTWCS score (Table 1).

Table 1: Krippendorff's alpha values for the inter and intra-observer agreement of different classification systems for assessing severity of diabetes-associated foot ulcers

	WIFI score agreement	UTWCS score agreement	SINBAD score agreement	Wagner Classification agreement
Inter-observer				
All three observers	0.788	0.306	0.516	0.374
Observer 1 vs. Observer 3	0.805	0.347	0.441	0.526
Observer 1 vs. Observer 2	0.780	0.270	0.536	0.238
Observer 2 vs. Observer 3	0.776	0.214	0.559	0.327
Intra-observer				
Observer 1	0.902	0.791	0.903	0.925
Observer 2	0.908	0.922	0.993	0.873
Observer 3	0.965	0.599	0.911	0.766

Legend: Shown are the Krippendorff's alpha values for agreement between two different observers, all three observers or within observers.

The median time taken to classify each ulcer varied significantly between all four grading systems ($p < 0.001$). The Wagner score had the lowest median time for completion 0.25 [0.25-0.50], and this progressively increased for the SINBAD 0.50 [0.50-0.50], UTWCS 0.75 [0.50-0.75] and WIFI scores 1.00 [0.88-1.00], with WIFI taking the longest time to complete.

Conclusion:

This study suggests that of the four classification systems examined, the WIFI score has the best inter-observer agreement. However, the time taken to complete the WIFI score was slightly longer than the other classification systems. This study confirms that WIFI is an explicit classification system to be used in clinical practice to objectively assess DFUs [14].

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Disclosure:

The contents discussed in this article has been already published in the journal "Diabetes Science and Technology" and is a part of the Doctoral thesis of the author. It has been cited in the Conclusion section for further reference.

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News and Events

Physiological Society of India (PSI): Webinar based awareness programs against the COVID-19 pandemic

In the global perspective of COVID-19, the physiological societies are quite concerned in resolving this pandemic situation. The Physiological Society of India (PSI) affiliated under IUPS, FAOPS, FIPS and SAAP, an age-old society formed in pre-independent India by the then pioneer medical and basic scientists, is no exception. In addition to its regular activities as publications, organizing meetings and others, PSI organized a national webinar series in collaboration with Dept. of Sports Science, University of Calcutta, Medinipur College (Autonomous), Medinipur and Berhampur Girls' College, Berhampur, Murshidabad on COVID-19. In this webinar series a number of dignitaries from the research institutes, universities, colleges and others were present, deliberated their valuable ideas to enhance awareness on different aspects to combat COVID-19.

PSI organized the following five national webinar-based awareness programs on the ongoing COVID-19 pandemic in collaboration with the following institutions. The details of the programme as available from the respective conveners are narrated below:

1. The Physiological Society of India & Dept. of Sports Science, University of Calcutta (21st August, 2020)

Topic: Effect of Yoga in Sports Performance during COVID-19

Convener: Prof. Sonmath Gangopadhyay, General Secretary, PSI

Speaker: Dr. Indranil Manna, Associate Professor, Midnapur College (Autonomous)

The broad outline of the special lecture included the history and development of yoga, and its important aspects as i) Asana ii) Pranayama iii) Meditation as well as Yoga and Sports Performance, COVID-19 pandemic and importance of yoga and important yoga asanas during COVID-19 pandemic

2. The Physiological Society of India & Dept. of Physiology, Midnapur College (Autonomous), Midnapore, West Bengal (29th August, 2020)

Topic: Development & Maintenance of Physical & Mental Wellness during COVID-19 Pandemic

Convener: Dr. Indranil Manna, Associate Professor, Midnapore College (Autonomous)

The online National Webinar was organized using Stream Yard and YouTube live and face book live. The registration process was performed using Google form. It was inaugurated by Dr. Gopal Chandra Bera, Principal, Midnapore College (Autonomous), Midnapore, West Bengal and presided by Prof. Amar Kumar Chandra, President of the Physiological Society of India (PSI). Prof. Kusal K Das, Dept. of Physiology, BLDE University, Karnataka was the Special Guest. Prof. Somnath Gongopadhyay, General Secretary of the PSI was also present.

Programme Schedule

12.00 Noon	Keynote Address	Prof. Prakash Chandra Dhara, Director DDE, VU: <i>Importance of Physical Exercise for the Physical Wellness During COVID-19 Pandemic</i>
12.30 PM	Invited Lecture	Prof. (Dr.) Baijayanti Baur, HOD, Dept. of Community Medicine, Midnapore Medical College, Midnapore: <i>Simple Ways to Become Mentally Stronger and Fearless</i>
01.00 PM	Invited Lecture	Dr. Mantu Saha, Scientist-F, DIPAS, DRDO, Delhi: <i>Role of Yoga for better health management in COVID-19 Pandemic Situation</i>
01.30 PM	Invited Lecture	Dr. Prof. Prasunpriya Nayak, Dept. of Physiology, AIIMS, Jodhpur: <i>Physiological Wellbeing during COVID-19 Pandemic</i>
02.00 PM	Valedictory Session	Dr. Biswarup Sarkar and Dr. Sudhamay Ghosh, Member Organizing Committee, National Webinar, Midnapore College (Autonomous)

The four technical sessions were chaired by distinguished scientists and academicians in the related field. About 1200 delegates from all over the country participated in this National Webinar. In the valedictory session, graced by a number of eminent scientists and academicians such as Prof. Amar Kumar Chandra, Dr. Mantu Saha, Prof. Prasunpriya Nayak, the dignitaries and participants shared their experiences. E-certificates were provided to participants and speakers.

The Webinar highlighted that people must develop and maintain the physical and mental wellness to cope up with the COVID-19 pandemic situation.. A plan of action was made by the PSI for providing better opportunity for the young researchers by organizing Seminars, Conferences and webinars on regular basis, continuous publications etc...

3. The Physiological Society of India & Dept. of Sports Science, University of Calcutta

Topic: Application of Biomechanics in Sports Performance - A COVID 19 perspective (13th September 2020)

Convener: Prof. Somnath Gangopadhyay, General Secretary, PSI

Speaker: Dr. Asis. Goswami, Ph.D. (Physiology), UNESCO Chairholder and Professor, Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, West Bengal

The term 'Biomechanics' has a very wide meaning at the present day scenario. In relation to sports the specialized field of science generally serves two purposes; Help in developing and analyzing sports skills and sporting implements (including sports gear) and analyzing the reasons of musculoskeletal injury. Application of biomechanics is carried out in two major formats called as kinematics and kinetics. The presentation gave clear perspectives on the application possibilities in various sports and injury prevention.

The link between the present pandemic of COVID-19 and biomechanics lies in the sudden spell of inactivity imposed as a result of lockdown. The training of the athletes was affected and in many cases the athletes were obliged to carry out training in home environment. The overall fallout of the situation is short term and long term detraining where the loss of strength and flexibility would be dominating over the loss of aerobic power. The possibility of muscular imbalance arising for detraining can increase vulnerability to injury if the athlete goes back to serious competitive training with lifting of lockdown. Risk stratification addressing the vulnerability would require planned strategic training schedules and rigorous neuromuscular testing of the individual athletes. Many countries have forwarded various guidelines for safe return of the athletes to the sporting arena.

The presentation called for united effort to develop Indian version of guideline for grassroots level plan for safe return of the athletes to their respective sports.

4. The Physiological Society of India & Dept. of Sports Science, University of Calcutta (20th September, 2020)

Topic: Exercise Programme and Nutritional Supplement to prevent COVID19 and other viral infections

Convener: Prof. Somnath Gangopadhyay, General Secretary, PSI

Speaker: Dr. Anup Adhikari, Eminent Exercise Physiologist, associated with Canadian Red Cross

How to develop immune system to survive from COVID-19 and other viral infections in coming days, in home different types of aerobic and anaerobic exercises with and without equipment to improve the immune system of the body were demonstrated. At the same time nutritional supplements specially intake of functional foods for the improvement of immune system is essential.

5. The Physiological Society of India & Department of Physiology, Berhampur Girls' College, Berhampur, Murshidabad, West Bengal (25-27th September, 2020)

Topic: COVID19: Fighting Together and Moving Forward

Convener: Dr. Smritiratan Tripathy, Head, Department of Physiology, Berhampur Girls' College

The three-day National Webinar was conducted between 2-4 pm and 5-7 pm. Resource persons from all-over India delivered valuable lectures on different aspects of Covid-19. The programme commenced at 2pm on 25th September, 2020 and was inaugurated with an opening ceremonial song by Miss Ritama Sinha, a 5th Semester student of Department of Physiology, Berhampore Girls' College (BGC) followed by an inaugural and welcome speech by Dr. Hena Sinha, Principal, BGC and the address of the President of PSI, UGC Emeritus Professor, University of Calcutta, Prof. Amar K Chandra.

The lectures were delivered by eminent scientists and academicians on important Covid-related issues:

Day 1 session 1: Prof. Debashish Bandyopadhyay of the University of Calcutta on the potential uses of melatonin for therapeutic purposes in Covid-19 affected patients, Prof. Kusal Kanti Das, Professor, BLDE University, Karnataka on the initiatives and services provided by the international body, UNESCO in aid of the Covid-19 pandemic, Prof. Somnath Gangopadhyay, Department of Physiology, University of Calcutta on ergonomic problems faced by the population due to continuous use of computers and other technology for the work-from-home situation on daily basis and the probable solutions thereof

Day 1 session 2: Prof. Sanjit Dey, Professor of Department of Physiology, University of Calcutta on health issues of women in the present day situation and how the changing lifestyle led to development of associated disorders in them causing an increased risk for various communicable diseases, Professor Chandradipa Ghosh, Department of Human Physiology and Community Health, Vidyasagar University,

Paschim Medinipore on the interplay of the coronavirus with the immune system, in reference to the exaggerated cytokine response and how it may be controlled thereof, Prof. Pratiti Ghosh, Professor and Head, Department of Physiology, West Bengal State University on coronavirus, the causative organism of Covid-19, its lifecycle, spread etc. and Dr. Amit Bandyopadhyay, Department of Physiology, University of Calcutta on challenges faced by the common people on a daily basis, the places to be avoided and the necessary actions to be taken to combat Covid-19.

Day 2 session 1: Prof. Nilkanta Chakrabarti, Professor, Department of Physiology, University of Calcutta on the adverse effects of coronavirus on different areas of brain, the consequences thereof and the possible management, Dr. Mousumi Sikdar, Department of Life Sciences, Presidency University on the nutritional status needed to deal with Covid-19 in general population, pregnant women, nursing mothers, neonates and children and Prof. Debasish Maiti, Department of Human Physiology, Tripura University, on processes involved in the entry and interaction of the coronavirus in the host cells.

Day 2 session 2: Mr Sri N. C. Bihani, an eminent advocate of Calcutta High Court, on cause and management of atrocities faced by women throughout the ages and their increase during the pandemic, Smt. Subhasree Chakraborty, Head, Department of Economics, Berhampore Girls' College, on economic issues and impact of the present Covid-19 pandemic and how to tackle it at a personal level, Dr. Indranil Manna, Department of Physiology, Midnapore College (Autonomous) on the applications of 'Yoga for Physical and Mental Wellbeing during COVID-19 pandemic situation' and Dr. Rajen Haldar, Department of Physiology, Calcutta University on blood oxygen saturation in COVID-19 patients, the diagnosis, pathophysiology and preventive measures to be considered thereof.

Day 3 session 1: Dr. Subhashis Sahu, Head, Department of Physiology, Kalyani University on perspectives of the new normal and new working life that become the routine since the lockdown period in

the pandemic situation, Prof. Krishna Roy, Principal, Bethune College, Kolkata on life, achievements and the works of the great educationist as well as social reformer Pandit Iswar Chandra Vidyasagar, and his contribution in physiology and Dr. Prasunpriya Nayak, Department of Physiology, AIIMS, Jodhpur on the various aspects of the Covid-19 disease.

Day 3 session 2: Dr. Prabodh Panchadhayee, Chest Medicine Specialist from Midnapore Medical College and Hospital, on pathophysiology, diagnosis and therapeutics in COVID-19 patients, Dr. Dilip Pradhan, Child Specialist, Murshidabad Medical College and Hospital, on the extent and effects of coronavirus infection in children, Dr. Rupa Talukdar, an eminent mental health professional of Kolkata, on mental issues faced by people during pandemic and lockdown and, Dr. Urmi Salve, Department of Design, IIT, Guwahati, on the involvement of ergonomics in stress management with special emphasis to sedentary jobs.

Finally, in the Valedictory session, Dr. Hena Sinha, Principal, BGC and Prof. Amar K Chandra, expressed their heartfelt gratitude to all the speakers as well as the participants. Prof. Debashis Bandyopadhyay also shared his thoughts about the webinar followed by Dr. Smritiratan Tripathy's vote of thanks as Convener of the webinar series, and Head, Department of Physiology, Berhampore Girls' College.

The programme was concluded by a song of Miss Ritama Sinha. Dr. Dakshayani Mahapatra, WBES, Assistant Professor, Department of Physiology, Government General Degree College, Mohanpur, Paschim Medinipur was the anchorperson who organized this successful three-day national webinar. Technical support was provided by Dr. Anup Kumar Karak, Head, Department of Mathematics, and Sri Shrikanta Basak, website developer of Berhampore Girls' College. The e-abstract book published contains abstracts of all the lectures that were presented.

The participants particularly the faculties, research scholars, students as well as citizens of the country are in extreme mental stress during COVID-19. The adverse situation through which we are passing has

affected many individuals psychologically for their isolation in home with limited movements outside and to do physical work. The content of the lectures may be helpful to provide supportive setting for the management of stress.

In this webinar based awareness programs against COVID-19, three institutes under the banner of the Physiological Society of India united and played pivotal role on an emerging public health problem to prevent and control this devastating pandemic and to bring us back to homeostasis.



*Prof Amar K Chandra
President, Physiological Society
of India, & Advisor, South Asian
Association of Physiologists*



*Prof Somnath Gangopadhyay
General Secretary, Physiological
Society of India,*



*Dr. Indranil Manna
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*Dr. Smritiratan Tripathy
Assistant General Secretary,
Physiological Society of India*

Physiological Society of Sri Lanka (PSSL):

Online Clinical Cardiovascular Autonomic Function Assessment Workshop

The first online workshop hosted by the Physiological Society of Sri Lanka was held on the 30th of April 2021. It was organized by the Department of Physiology of the Faculty of Medicine, University of Kelaniya, Sri Lanka. The resource persons included eminent Physiologists and clinicians from Sri Lanka, the United Kingdom, and India.

The session was hosted by Dr Tania Warnakulasuriya, the lead organizer of the event. The workshop comprised of 3 sessions. The first session was on the theoretical components of ANF testing. Dr Indu Nanayakkara of the department of Physiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, initiated the session with an introduction to the autonomic nervous system and ANF testing. She is a pioneer in establishing ANF testing in Sri Lanka and provides clinical services in ANF testing at the ANF laboratory at the University of Peradeniya.



The heart rate variability (HRV) assessment and its applications are a noninvasive technique to monitor the autonomic nervous system. Dr Dinu S. Chandran from the Department of Physiology, All India Institute of Medical Sciences, New Delhi, India, joined remotely and elaborated the clinical and research applications of HRV.

The second session was on the practical aspects of ANF testing, including cardiovagal and sudomotor components, and new advances in ANF testing. It was conducted by Mr Scott Johnstone, Senior Clinical Scientist & Academic Programme Co-ordinator in Autonomic Neurology at the National Center for ANF assessment in the UK, the Autonomic Unit at the National Hospital for Neurology and Neurosurgery, Queen Square, London.



Dr Tania Warnakulasuriya, a Senior Lecturer in Physiology, continued the practical session on the currently available ANF testing facilities in Sri Lanka. The process a patient referred to the ANF laboratory at Ragama goes through was shown using a video explaining the analysis of the data obtained at testing. The Third session, on clinical application, included a session conducted by Dr Dulani Kottahachchi, consultant endocrinologist, Senior lecturer at the Department of Physiology, University of Kelaniya. She explained the clinical presentations of diabetic autonomic neuropathy and other autonomic neuropathies and the management.

Dr Ellen Merete Hagen, Consultant Neurologist in Autonomic Medicine, National Hospital for Neurology and Neurosurgery, Queen Square, London, discussed central autonomic disorders, highlighting the importance of monitoring patients with Parkinson's and other synucleinopathies for autonomic disturbances.



Prof. Valeria Iodice, Clinical and Academic Lead, Autonomic Unit, Honorary Associate Professor, University College London, England, an expert in POTS and a leader in developing novel therapies in the management of OI in dysautonomia, discussed autonomic dysfunction and common conditions resulting in orthostatic intolerance (OI). She explained the new medications being developed to manage patients with this debilitating and persistent condition.

Dr Kushan Medagoda, consultant physician, Senior lecturer at the Department of Physiology, the University of Kelaniya, Sri Lanka, presented two interesting clinical presentations with dysautonomia, encountered in his practice as a physician. He emphasized the importance of educating the physicians and expanding the facilities available for testing patients with dysautonomia in Sri Lanka.

52 participants registered for the workshop provided overwhelmingly positive feedback. Resources of the online workshop were made available to interested academics via the link provided below.

<https://medicine.kln.ac.lk/depts/physiology/index.php/department-news/51-online-clinical-cardiovascular-autonomic-functions-assessment-workshop>



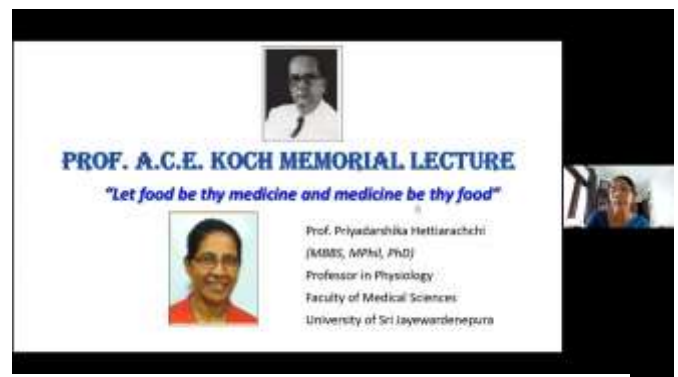
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PSSL: Regional Meeting Hosted by the Faculty of Medicine University of Colombo

The first virtual regional meeting of the Physiological society of Sri Lanka (PSSL) was held on 12th May 2021, from 8.30 am onwards, with the enthusiastic participation of members from all over the country. It was organized by the Department of Physiology of the Faculty of Medicine, University of Colombo.

The event commenced with the welcome address delivered by Prof. Piyusha Atapattu, Head of the Department of Physiology of Faculty of Medicine, University of Colombo who invited the participants to stay connected for a fruitful session. It was followed by the address by the president of the Physiological society of Sri Lanka, Prof. Niranga Devanarayana.

The Inaugural Professor A C E Koch memorial lecture was delivered by Prof. Priyadarshika Hettiarachchi, Faculty of Medical Sciences, University of Sri Jayewardenepura. She was introduced by the President of the Physiological society, Prof. Niranga Devanarayana. Her lecture, titled “Let food be thy medicine and medicine be thy food” was an eye-opener, in which she enlightened the audience on the proposed mechanisms linking obesity and the gut microbiota and the strategies based on them. The key take home message engraved by the lecture was “we are what we eat and what our microbiome is”.



Professor A C E Koch memorial lecture

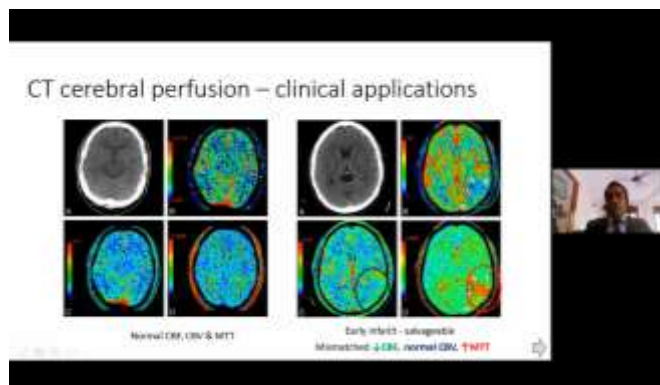
The department of physiology of the Faculty of Medicine, University of Colombo has made an immense contribution to the field of research via research spanning neurophysiology, reproductive and endocrine physiology, immunogenicity, nutrition, cardiorespiratory physiology, autonomic function and GI physiology. A glimpse of it was shared via a video.

This was followed by lectures of young researchers in the department of Physiology, Faculty of Medicine, University of Colombo. Dr. Chamila Dalpathadu a senior lecturer, discussed “Autonomic dysfunction in Older adults”, highlighting aging-associated autonomic dysfunction, pathophysiology, clinical manifestations, and its investigation using simple, non-invasive tests.



Dr Chamila Dalpathadu making her presentation

Dr. Sahan Guruge, a lecturer who has specialized in radiology, highlighted the important role of radiological imaging in the field of physiology via a lecture on “Role of imaging in physiology – a path less explored”. He enlightened the audience on the numerous modalities of imaging and their applications in clinical physiology.



Dr Sahan Guruge linking physiology and radiology

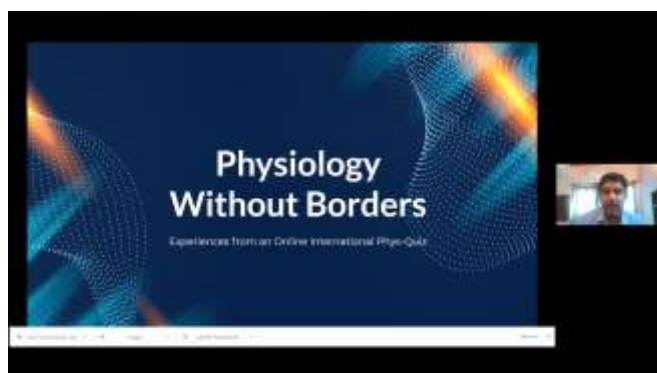
During the tea break, the participants were taken on a virtual tour of the Faculty of Medicine, Colombo, with a series of beautifully captured photographs by a senior lecturer in physiology, Dr. Lakmali Amarasiri.

Dr. Nilanka Wickramasighe, a young lecturer, made a presentation on “Tackling an unchecked burning issue: GORD in Sri Lanka”. Following a brief introduction to the disease, its importance, diagnosis, and management, she provided a glimpse into her PhD research on gastroesophageal reflux disease (GORD) in Sri Lanka, where she plans on performing an island-wide assessment of prevalence, associated factors, treatment options, and hopes to explore the possible application of gastrointestinal physiology to predict treatment outcomes.



Dr Nilanka Wickeremesinghe tackling GORD

The team of students, Mr. Minura Manchanayake, Ms. Hajanthi Jayapragasam and Mr. Priyath Seneviratne, representing the Faculty of Medicine, Colombo at the recent International Inter-Medical College Physiology Quiz in Lahore, and securing the first place among international teams and winning the second place overall, shared their experiences of an online physiology quiz through their talk.



Students sharing their experience in the virtual quiz

The session was also graced by Prof. Samina Malik of University of Lahore who, while congratulating the winners, shared her thoughts regarding organising of the online quiz.



Prof Sameena Malik joining in

The session ended with the audience being driven away from physiology into a very different realm through a mind-blowing presentation by Prof. Dinithi Fernando, Professor in Department of Physiology, Faculty of Medicine, University of Colombo on “Beyond basic sciences: understanding patient experiences through the arts”.

She described an inter-departmental interactive activity carried out with first year students of the faculty, to inculcate empathy and compassion using literary works like poems, short stories and movies to stimulate discussion among the future medical graduates on the patient’s perspective.



Prof Dinithi Fernando linking medicine and arts

In the pre-COVID era, the regional meeting concluded with a social program that drew all members closer and gave them memories to cherish for a lifetime. However, due to the prevailing restrictions in the country this was replaced with an assembly of photographs of the many memories made together over the years. This walk down memory lane brought out a myriad of emotions in all! With this another successful regional meeting of the Physiological Society of Sri Lanka, hosted by the Department of physiology of the Colombo Medical Faculty and moderated by Dr. Shahana Majeed, came to an end, with the fervent hope of meeting with all the members in person at next year’s meeting.



A virtual good bye.....

This narrative was compiled by



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Overview of SAAP VII Conference

Dear Dr Alam,

You asked me to give my feedback on the 2021 SAAPCON Delhi.

Overall the conference was unique being globally connected from the labs, offices and homes. This indeed might have been a new experience for every participant to float on the waves with the shortened space time. Now we proceed to the act of cognition known as learning: what was known, what was new and what would be next range of assessments. This would need a group of juries in the form of peer reviewed presentation of science under the leadership of a chairperson of a given session. Chairs did do the summary of the session but perhaps was not documented. Awards likewise were awarded but without mention of cardinal findings behind as the EMF.

The PowerPoint presentation model should have been directed how to make an effective transmission of signals in the form of 1. What are the questions of the study; 2. Means of methodology; 3. Important observations from this study are; 4. Premises based conclusion. A choice of language could bring the tower science to public as taught to us by Carl Sagan. Data should be presented more through figures than tables with minimum use of written texts.

The goal is more to give a talk than to read it with a high GR ratio. This plan would have enabled giving all countries quasi equal time and equal attention to presentations as well as Q & A sessions to bring the

point home that it was DNA that made Watson and Crick world famousthey did it Eureka! It coincided with the conquering of Mt Everest after 90 years of endeavors and sacrifices. It was a feast that some of the written questions could be passed on to the chair of a session. The chairs were kind to pass on to the authors. It was indeed unique receiving replies from authors being in holiday resorts in Hawaii inter alia.

How nice to observe that young scientists are catch up the flight of original science after a thorough brain storming especially if the grants are sourced from the public tax revenue. Review lectures of senior scientists should be the state of the art presentation perhaps the organizing scientific committee should choose the topics according to the framework of oral [closed poker] and poster [open poker] contents. Actually, journals ask scientists to write a review article on a topic of e.g. Leydig cell that one has worked for 40 years to swim in its pool of literature.

We learn from seasoned scientists how they filter rumors through evidence as there is a hyperbolic relationship between the two. We know rumors grow wildly in absence of evidence. What is scientific if a matter is definable, measurable and falsifiable. If not, it walks into the metaphysical park!

The status of truth is in "being" as well as "becoming". Let there be light from the matter.

Collegial regards

Professor of Physiology
MD PhD Bochum FCPS
SIUT and AKU
Karachi Pakistan

Remembering Dr Arif Siddiqui

Dear Dr Mangala,

How thoughtful of you to think of Dr Arif Siddiqui to pay rich tributes to his SAAP boat in which we all are sailing. India got freedom but not unity. The only way this could be achieved is through the enlightenment of science era. How SAAP has connected us, you have vividly demonstrated today. It seems to be stronger than SARC in much the same way as the CERN LHC edged over UNO. 6000 scientists from all over the world participated at LHC project to celebrating the discovery of Higgs Boson.

My acquaintance with Dr Arif Siddiqui started when he joined AKU in 1986. When I joined this institution from Bochum, I enquired to join the Physiology Society of Pakistan. To my surprise, I came to know it existed not. Then I sent a letter to all universities and medical colleges asking them for their cooperation to establish the Pakistan Physiology Society. The reply was in yes from all institutions. The first successful three days scientific inaugural conference of PPS was held under the founding Chairman HR Ahmad, Secretary Sohail Rao and Treasurer Arif Ali Zaidi on 15 April 1987 at Aga Khan University, Karachi Pakistan.

The PPS then flew like a butterfly in turn from flower to flower institution every two years rotation throughout Pakistan. The next institution was Army Medical College Rawalpindi in 1989. The baby PPS was nurtured mainly by medical institutions of the country. The fact of the matter was that institutions were divided on two different paradigms of research based education of university vs training system of medical colleges. We discussed intensely on this matter how to loop university enabling environment with the medical college ones. Dr Siddiqui concern was how to improve PPS both from the point of view of the standard of education and research. The regional connectivity

sparked his frontal lobe. The prepared mind favoured when he attended the PSI in 2007. Upon his return from New Delhi, he came radiating and reported to me of the Big Bang news finally leading to SAAP.

In all activities, I noticed that Dr Arif Siddiqui did what he said. His vision and target was awesomely integrated like an eagle. The slope of integration of faculty and institution is determined by a genuine and an enlightened expression of a professional society and its journal.

Dr Arif Siddiqui knew the art how to nurture the mirror of an institution. What a man who walked on this planet with a great sense of dignity and integrity. How dialectically Dr Siddiqui entangled PPS with SAAP and IUPS.

Wish the fruits of Dr Siddiqui efforts pay scientifically for young generations to be enlightened by unfolding their creative energies. When Buddha was dying, people asked Him "what the last message is". He replied "Enlighten yourself".

With this note, we all should cheer the legacy of Dr Arif Siddiqui.

Collegial regards

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